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# Bhutan

*Bhutan does not produce or consume much energy, but it has hydroelectric power potential and is a hydropower exporter (to India). Around 98% of Bhutan's energy consumption is met by biomass -- mainly fuelwood.*

*Please note that all information contained in this report is the best available as of January 2001 and can change.*



## GENERAL BACKGROUND

In 1998, after nearly a century of absolute rule by a monarchy, King Jigme Singye Wangchuk took a step towards increased political participation by giving the legislature the right to remove him from leadership and to appoint his cabinet. An income tax also was introduced for the first time. Bhutan's per capita income is around \$1,060 per person (in "purchasing power parity" terms).

Bhutan is divided into three major regions: the largely unpopulated, northern, Great Himalayan region along the Tibetan border; the Middle Himalayan zone consisting of fertile, populated valleys with a temperate climate; and southern Bhutan, which has both Himalayan foothills and former bamboo jungle areas now largely cleared for rice cultivation. Overall, Bhutan's economy is predominantly agricultural, with limited industrial activity. Bhutan's main foreign trade link is through the port of Calcutta, India. Bhutan enjoys duty-free trade with India, and hopes to set up free trade ties with Bangladesh as well.

Bhutan and Nepal are attempting to reach a negotiated settlement to the problem of nearly

100,000 Bhutanese refugees (mainly ethnic Nepalis) in Nepal. According to the United Nations, most of these refugees are victims of ethnic discrimination in Bhutan, a charge which has been denied by Bhutan's government. In late December 2000, agreement reportedly was reached on verification of refugees, possibly opening the door to their repatriation.

Bhutan has among the strictest environmental conservation policies in the world (including bans on export of raw timber, strict limits on tourism, and rigorous controls on all infrastructure and industrial projects). As a result, the country's forest cover has actually increased since the 1960s, to around 72% currently. Recently, however, some Bhutanese have complained that the country has gone too far in this direction, and has hurt economic development

as a result.

## **ENERGY**

Bhutan has no significant reserves of oil, natural gas, or coal. Around 98% of energy consumption in Bhutan is made up of biomass -- mainly firewood. Commercial energy consumption consists of small amounts of oil products, imported coal, and hydroelectricity. Bhutan's household sector accounts for around three-quarters of total energy consumption. Bhutan has potentially huge hydropower resources, a result of the country's steep mountains, deep gorges, and fast-flowing rivers.

## **OIL**

Bhutan produces no oil, and consumes only about 1,000 barrels per day (bbl/d), although consumption is growing rapidly. Oil products (i.e., kerosene, diesel, jet fuel, gasoline) are imported.

## **ELECTRICITY**

Bhutan's installed electric generating capacity currently is around 3530 megawatts (MW), of which about 97% is hydroelectric and the rest thermal. Bhutan's main hydroelectric facility is the 336-MW Chukha plant, which came online in 1986 and which is tied in to the Indian power grid (the plant was 60% paid for by India). The smaller, 18-MW, Jaldhaka hydro plant, located in the southwest of the country, supplies power locally and also exports to the West Bengal, India. Bhutan also has several "mini-hydro" and "micro-hydro" plants. Only a small percentage of Bhutan's potential hydroelectric power capacity currently is being exploited. Potentially, Bhutan could be a large net power producer and exporter to neighboring countries like India. Bhutan has plans to commission a 1,020-MW hydropower plant at Tala in 2003. Construction on transmission lines for the project began in early October 2000. The two, 400-kV, double-circuit lines will enable Bhutan to export surplus power (around 90% of Tala's generation) to India. At present, Bhutan faces frequent power outages and shortages (yet another obstacle to economic growth), while only around 15%-20% of the country's population has access to electricity.

Rural electrification is a main priority for Bhutan. In November 1999, the Asian Development Bank (ADB) approved a \$10-million concessional loan for a Sustainable Rural Electrification Project in Bhutan. The project is aimed at giving more than 6,000 people, hospitals, and schools -- particularly in poor, remote areas of the country -- access to electricity over the next several years. Currently, fuel wood is the main source of energy for rural residents of Bhutan, contributing to deforestation and other environmental problems. The ADB project also will promote the use of solar power. Wind power is another possibility for Bhutan, with the Himalayas acting as funnels for powerful winds.

In January 2000, India's state-run Power Grid Corporation said that it was seeking a private company to supply electricity via an 1,116-mile route from Bhutan to New Delhi. In February 1999, the Japanese Electric Power Development Corporation won a contract to provide technical consulting services for hydropower development in Bhutan.

## **COUNTRY OVERVIEW**

**King:** Jigme Singye Wangchuck (since July 1972; both head of state and head of government)

**Independence:** August 8, 1949 (from India)

**Population (2000E):** 800,000-2 million

**Location/Size:** Southern Asia, between India and China/18,147 square miles (about half the size of Indiana)

**Cities:** Thimpu (capital -- population, 35,000), Phuntsholing

**Languages:** Dzongkhka (official), various Tibetan and Nepalese dialects, English widely used

**Ethnic Groups:** Bhote (50%), ethnic Nepalese (35%), indigenous or migrant tribes (15%)

**Religions:** Lamaistic Buddhism (75%), Indian- and Nepalese-influenced Hinduism (25%)

**Defense (1998):** Army (5,000)

## **ECONOMIC OVERVIEW**

**Finance Minister:** Hishey Zimba

**Currency:** Bhutan Ngultrum (BTN)

**Market Exchange Rate (1/16/00):** US\$1 = 46.55 BTN

**Gross Domestic Product (GDP -- purchasing power parity -- PPP) (1999E):** \$2.1 billion

**Per Capita GDP (1999E, PPP):** \$1,060

**Real GDP Growth Rate (1999E):** 7%

**Inflation Rate (consumer prices) (1998E):** 9%

**Merchandise Exports (1998E):** \$111 million

**Merchandise Imports (1998E):** \$136 million

**Merchandise Trade Balance (1998E):** -\$25 million

**Major Export Products:** Cardamom, gypsum, timber, handicrafts, cement, fruit, electricity (to India), precious stones, spices

**Major Import Products:** Fuel and lubricants, grain, machinery and parts, vehicles, fabrics, rice  
**Major Trading Partners:** India, Bangladesh, Japan, United Kingdom, Germany, United States  
**External Debt (1998E):** \$120 million

### **ENERGY OVERVIEW**

**Trade and Industry Minister:** Khandu Wangchuk  
**Proven Oil and Gas Reserves (1/1/01E):** None  
**Oil and Gas Production (1999):** None  
**Oil Consumption (1999E):** 1,000 bbl/d  
**Net Oil Imports (1999E):** 1,000 bbl/d  
**Crude Oil Refining Capacity (1/1/01E):** None  
**Natural Gas Consumption (1999):** None  
**Coal Reserves:** 1.3 million short tons  
**Coal Production (1999E):** 1,000 short tons  
**Coal Consumption (1999E):** 24,000 short tons  
**Net Coal Imports (1999E):** 24,000 short tons  
**Electric Generation Capacity (1/1/99E):** 0.353 gigawatts (97% hydroelectric, 3% thermal)  
**Electricity Production (1999E):** 1.86 billion kilowatthours

### **ENVIRONMENTAL OVERVIEW**

**Total Energy Consumption (1998E):** 0.01 quadrillion Btu\* (0.02% of world total energy consumption)  
**Energy-Related Carbon Emissions (1998E):** 0.05 million metric tons of carbon (0.001% of world carbon emissions)  
**Per Capita Energy Consumption (1998E):** 3.7 million Btu (vs U.S. value of 350.7 million Btu)  
**Per Capita Carbon Emissions (1998E):** 0.03 metric tons of carbon (vs U.S. value of 5.5 metric tons of carbon)  
**Energy Intensity (1997E):** 15,300 Btu/ \$1990 (vs U.S. value of 13,900 Btu/ \$1990)\*\*  
**Carbon Intensity (1997E):** 0.12 metric tons of carbon/thousand \$1990 (vs U.S. value of 0.22 metric tons/thousand \$1990)\*\*  
**Fuel Share of Energy Consumption (1998E):** Oil (30.0%), Coal (8.8%)  
**Fuel Share of Carbon Emissions (1998E):** Oil (71.3%), Coal (28.7%)  
**Status in Climate Change Negotiations:** Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified August 25th 1995). Not a signatory to the Kyoto Protocol  
**Major Environmental Issues:** Soil erosion and limited access to potable water  
**Major International Environmental Agreements:** A party to Conventions on Biodiversity, Climate Change and the Nuclear Test Ban Has signed, but not ratified: Law of the Sea

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar and wind electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

\*\*GDP based on EIA International Energy Annual 1998

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### **Links**

For more information from EIA on Bhutan, please see:  
[EIA - Country Information on Bhutan](#)

Links to other U.S. Government sites:  
[2000 CIA World Factbook - Bhutan](#)  
[Library of Congress Country Study -- Bhutan](#)  
[U.S. State Department Consular Information Sheet \(9/14/99\) -- Bhutan](#)

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[Bhutan "Druk Yul" Links Page](#)  
[Regional Wood Energy Development Programme in Asia -- Bhutan](#)  
[Lonely Planet Guide to Bhutan](#)

*Sources for this report include: Agence France Presse, CIA World Factbook, Dow Jones Newswire, the Independent, Library of Congress Country Study, M2 Presswire, Regional Wood Energy Development Programme in Asia, U.S. Commerce and State Departments, Water Power and Dam Construction*

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